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**Pena-Espinoza, Miguel Angel; Williams, A.; Boas, Ulrik; Thamsborg, S.; Enemark, Heidi**

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# *In vitro* anti-parasitic effects of sesquiterpene lactones from chicory against cattle nematodes

M. Peña[1], A. Williams[2], U. Boas[1], S. Thamsborg[2], H. Enemark[1]

[1]Technical University of Denmark, National Veterinary Institute, Bülowsvej 27, 1870 Frederiksberg C, DK; [2]University of Copenhagen, Department of Veterinary Disease Biology, Dyrlægevej 100, 1870 Frederiksberg C, DK; miap@vet.dtu.dk

Chicory (*Cichorium intybus*) is currently being investigated for potential use as an anti-parasitic crop for ruminants. However, mechanisms behind observed *in vivo* effects are poorly understood but it is likely that plant secondary metabolites like sesquiterpene lactones (SL) play a role. In this study we tested the effect of SL-rich extracts from 2 chicory cultivars on the viability of first-stage larvae (L1) of *Ostertagia ostertagi*, a pathogenic cattle nematode. Chicory *Spadona* and *Puna II* were grown at the same farm and leaves were sampled the same day. 1 g of freeze-dried leaves was extracted in methanol/water. Resulting extracts were incubated with cellulase enzymes, recovered in ethyl acetate and purified by normal solid-phase extraction. Obtained extracts were dissolved in 100% DMSO. A calf infected with *O. ostertagi* served as donor of nematode eggs. Eggs were hatched and L1 obtained were incubated in 8 extract concentrations for each cultivar (in duplicates) ranging from 2000 μg to 16 μg dry matter (DM) extract/mL (final concentration 1% DMSO in PBS). Ivermectin (1 mg/mL) and 1% DMSO in PBS were used as positive and negative controls, resp. Viability of L1 was evaluated morphologically after 12 h of incubation (25°C) and was expressed as the number of live L1 to the total number of L1. *Spadona*-SL dramatically decreased the survival of *O. ostertagi* L1, with a mortality of 99% at concentrations ≥ 500 μg/mL and $EC_{50}$ of 132.8 μg/mL (CI = 117.5-150.2 μg/mL). Conversely, *Puna*-SL induced a larval mortality of only 37% at the highest concentration tested (2000 μg/mL), thus estimation of $EC_{50}$ was not possible. Results showed a marked difference in the anti-parasitic activity of SL-rich extracts from 2 different chicory cultivars. Further biochemical analyses of the extracts may reveal the responsible compounds.